

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C10L 1/10	A3	(11) International Publication Number: WO 95/20637 (43) International Publication Date: 3 August 1995 (03.08.95)
(21) International Application Number: PCT/IT95/00009 (22) International Filing Date: 27 January 1995 (27.01.95) (30) Priority Data: ME94A000002 31 January 1994 (31.01.94) IT (71) Applicant (for all designated States except US): MEG S.N.C. DI SCOPELLITI SOFIA & C. [IT/IT]; Via Marco Polo, 73 G/B/9, I-98100 Messina (IT). (72) Inventor; and (75) Inventor/Applicant (for US only): FERRARA, Marcello [IT/IT]; Via Marco Polo, 73 G/B/9, I-98100 Messina (IT). (74) Agent: MASCIOLI, Alessandro; A.N.D.I. - Associazione Nazionale Degli Inventori, Via Urbana, 20, I-00184 Roma (IT).		(81) Designated States: AU, CA, JP, KR, MX, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 17 August 1995 (17.08.95)
(54) Title: HYDROCARBON OIL-AQUEOUS FUEL AND ADDITIVE COMPOSITIONS		
(57) Abstract The present invention relates to processes and additive compositions capable of performing at least one of the following: a) stabilizing asphaltenes flocculated and/or precipitated in a petroleum product (as a crude oil, a residue or a fuel oil), rendering thus possible its blending with other petroleum products or its processing or its combustion; b) reducing fouling in petroleum apparatuses; c) achieving yield increase in petroleum refining and/or petrochemical operations; d) reducing particulate and/or SO _x and/or NO _x emissions during combustion of fuels; e) reducing fouling and/or coke formation in catalysts; f) favouring cleaning and/or decoking of petroleum apparatuses; g) reducing fouling arising from diesel and biodiesel fuels.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

INTERNATIONAL SEARCH REPORT

International Application No.
PC1/IT 95/00009

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C10L1/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C10L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,4 289 501 (BMW) 15 September 1981 *COMPLETE DOCUMENT* ---	1-62
X	US,A,4 516 981 (NELSON) 14 May 1985 cited in the application *COMPLETE DOCUMENT* ---	1-62
X	US,A,4 753 661 (POLAR MOLECULAR CORP.) 28 June 1988 *COMPLETE DOCUMENT* ---	1-62
X	& DE,A,36 26 102 (POLAR MOLECULAR CORP.) cited in the application ---	1-62
X	US,A,5 055 112 (ETHYL) 8 October 1991 cited in the application *COMPLETE DOCUMENT* ---	1-62
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

10 July 1995

Date of mailing of the international search report

13.07.1995

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+ 31-70) 340-3016

Authorized officer

De Herdt, O

INTERNATIONAL SEARCH REPORT

International Application No.

PC1/IT 95/00009

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,4 441 890 (EXXON) 10 April 1984 *COMPLETE DOCUMENT* ----	1-62
X	WO,A,93 13294 (HENKEL) 8 July 1993 *COMPLETE DOCUMENT* -----	1-62

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IT 95/00009

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

See annex

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

PCT/IT95/00009 Reasoning of Lack of Clarity and Lack of Support (Art 6 PCT)

The claims of the present application are so unclear (Art 6 PCT) and so unsupported by the description (Art 6 PCT) that no complete search of the claims can be carried out (Art 17(2)(a)(ii) and (b)) PCT). The International Search Report has been established for those parts of those claims which are considered to be sufficiently clear and sufficiently supported within the meaning of Art 6 PCT. In the present case this means only those parts of those claims which are clear and are supported by the worked examples in the description.

The reasons the ISA considers the claims to be unclear and to be unsupported by the description are as follows:

Claim 1

Clarity

- (i) Claim 1 relates in extremely broad and general terms to "hydrocarbon oil and/or aqueous and/or fuel and/or additives [sic] compositions". An attempt is made to define these multifarious products by reference to their properties or rather to extremely general, vague, imprecise and in some cases relative statements of results to be achieved (hereafter referred to as "desiderata"). Claim 1 does not in fact define technical features in the sense required by Rule 6.3 (a) PCT and Art 6 PCT at all. It merely lists desired characteristics of otherwise undefined "oil[s]..aqueous ...fuel or additives". As such it is so unclear as to be unsearchable.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

(ii) In addition some of the desiderata are unclear in themselves.

Desideratum a) refers in part to "repeptization of asphaltenes". This phenomenon is unclear to the skilled person.

Desideratum c) refers to "HFT and/or CCR". Neither of these abbreviations are clear to the skilled practitioner.

Desideratum g) refers to "PAH reduction", which is also unclear.

Point i) refers to "new sorts of solvent presence". It is unclear what this might mean.

Support in the description

Claim 1 covers an almost infinite number of possibilities (it is a so-called "free beer" claim in that it relates to something we would all like to have, but until now have found difficult to obtain). The description gives however only a limited number of ways of achieving only a limited number of the desiderata listed in the claim. The claim cannot be said to be supported over the whole of its enormous scope. It is remarked that support is not a matter of simple verbal consistency between claim and description, and that therefore the apparently speculative listing of hundreds of compounds in the description is not considered to provide support for this very broad claim. Since in practice for economic and pragmatic reasons a decision must be taken as to the extent to which a search is possible, in view of the

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

general and speculative nature of the drafting, it has been decided that the present set of claims is clear and supported only insofar as it relates to matter explicitly covered in the examples.

Claims 2 and 3

Similar comments apply to claims 2 and 3.

Claims 4 to 6, 9, 10, 13, 17, 21, 24, 29, 30, 31, 33,, 38, 41, 57, 58, 59 and 62

These claims are regarded as being clear and supported only insofar as they relate to matter covered in the examples, for reasons as explained above. It is in passing pointed out that at least insofar as these claims pertain to the additives alone, it must be considered that these claims in fact relate merely to the chemical product listed per se which is in a form suitable for use as as an additive of some kind.

In other words protection is being sought for huge lists of structurally completely unrelated compounds which are in any case per se known in the art and part of common general knowledge. It is only because the claims are presently so unclear that no unity objection is being raised at the present time, although this may very well become an issue should the Applicant desire to proceed further with the application.

Claim 7

The long list of hydrocarbon vehicles recited in claim 7 is regarded as being clear and supported only in so far as it relates to matter covered in the specific examples. It is remarked in passing that insofar as the

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

claim pertains to the hydrocarbon vehicles or distillate per se, it must be considered that this claim relates to just about any hydrocarbon vehicle or distillate imaginable having any of the desiderata listed in claim 1; in other words to just about any hydrocarbon vehicle or distillate imaginable. The claim is unclear and unsupported.

Claim 8

The result to be achieved formulation of claim 8 renders this claim unclear.

Claim 11

This claim is technically unclear. An attempt is made to define a composition by reference to a state of said composition at conditions which are defined only the loosest of ways, namely "at normal operating conditions of apparatuses where such compositions flow..."

Claim 12

This claim is regarded as being clear and supported only insofar as it is supported by the examples.

Claim 14

An attempt is made to define a composition by reference to features of the use to which the composition is to be put, namely by reference to the entry of the composition into a petroleum plant, rather than by concrete technical features of the compositions themselves. The claim is unclear as a result.

Claim 15

Claim 15 is unclear. "Morphologically different" has no well defined and recognised meaning in the art.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

Claim 16

Claim 16 is regarded as being clear and supported only insofar as it relates to matter covered in the examples, for reasons as given above.

Claim 18

Similar comments as given above concerning claim 1 apply to claim 18, in which an attempt is made to define a vegetable diesel oil solely by reference to desiderata. The claim is so general and so unclear that no meaningful search can be carried out.

Claim 19, 20

These claims are considered to be clear and supported by the description only insofar as they relate to matter covered in the examples, for reasons as already explained above. Similar comments to those given above for claims 4ff apply equally.

Claim 22 and 23

Here, depending on how one reads the claims, an attempt is made either to define a composition by reference to features of the use to which the apparatus is to be put, or an attempt is made to define a composition by reference to results to be achieved. In either case the claim is so unclear as to be unsearchable.

Claim 25

Claim 25 is incomprehensible. It refers to catalysts which are said to be "parts of additives under present invention". However, claim 1, from which claim 25 depends, does not relate to catalysts, but to "hydrocarbon oil and/or aqueous and/or fuel and/or additives

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

[sic] compositions". The claim is so unclear as to be unsearchable.

Claims 26, 27

Similar comments apply to these claims.

Claim 28

Similar comments to those given above for claims 1 and 18 apply to claim 28.

Claim 32

Similar comments to those given above for claims 22 and 23 apply to claim 32.

Claim 34

Similar comments to those given above for claim 28 apply to claim 34

Claim 35, 36, 37

These claims are considered to be clear and supported by the description only insofar as they relate to matter covered in the examples, for reasons analagous to those already explained above.

Claim 39

An attempt is made to define compositions by reference to results to be achieved, which renders the claim unclear.

Claim 40

This claim is regarded as being clear and supported only insofar as it relates to matter covered in the examples of the present application.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

Claim 42

This claim, read in combination with claim 1, is unclear, being vague and drafted in relative terms. It is in passing pointed out that the subject-matter of the claim is so vaguely drafted as to be anticipated by just about any crude oil, for example.

Claim 43

Claim 43 relates inter alia to the use ("application") of just about any solvent (cf claim 6) or the production of any additive at all "to be utilised in connection with hydrocarbons treatment". As such, the claim is so broad as to leave the skilled reader in a state of doubt and uncertainty as to the extent of protection requested. The claim is so unclear as to be unsearchable, and considered to be supported by the description only insofar as it relates to matter covered by specific examples in the description. Unity would certainly be a problem if the claim were clear enough to allow a proper analysis under Rule 13 PCT.

Claim 44

This claim, which relates to solvent compositions per se, is unclear, supported only insofar as it relates to matter covered by specific examples in the description, and, of course, anticipated by the generally known solvent hexane, for example.

Claims 45 to 47

These claims are regarded as being clear and supported only insofar as they relate to matter covered in the examples of the present application.

Claim 48

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

This independent claim refers in the most general of terms to a method of treating "compositions of the present invention" in order to obtain certain ill-defined results by using "additive[s] under present invention". Neither additives, nor compositions are further defined at all. The claim is unclear and unsearchable.

Claim 49

Claim 49 is incomprehensible. It depends from claim 48, which refers, as noted above, to a method of treating "compositions of the present invention" in order to obtain certain ill-defined results by using "additive[s] under present invention". Claim 49, however, defines not a method for treating compositions but, apparently, the variation of operating conditions within a petrochemical plant. The claim is so unclear as to be unsearchable.

Claims 50, 51, and 52

These claims are regarded as being clear and supported only insofar as they relate to matter covered in the examples of the present application.

Claim 53

This independent claim refers to a process of inhibiting fouling by adding into petroleum derived stock "an effective amount of a composition under present invention". It omits to further define these compositions however, and the claim is thus unclear.

Claim 54

This independent claim relates to a method for preventing stability problems or various other problems of various oils by incorporating into the oils "an

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

effective amount of a composition under present invention". It omits to further define these additives however, and the claim is thus unclear.

Claim 55

Similar comments apply to independent claim 55.

Claim 56

This independent claim is unclear since neither starting material nor end product of the claimed process ("application") are clearly defined.

Claim 60

This claim is regarded as being clear and supported only insofar as it relates to matter covered in the examples of the present application.

Claim 61

This claim is unclear since it refers to a method of cleaning and/or degassing apparatuses according to claims 4, 5, 6, 22, 23 or 24. However, none of these claims relate either to methods or to apparatus per se. The scope of this claim is quite unclear.

Claim 62

In addition to the comments already made about this claim, reference is made to the requirements of Rule 6.2 (a) PCT, which are also not met here.

To summarise, the claims are so unclear, apparently so speculative and certainly so unsupported by the

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

description as to make a search on the basis of the claims impossible.

Accordingly, the search has been carried out on certain aspects of the claimed subject-matter which are considered to be truly supported by the description, namely those claimed aspects which are directly supported by the examples. The fact that all examples have been searched should not be considered as implying that the ISA considers the application to be unitary in the sense required by Rule 13 PCT. The claims are so unclear that they do not permit a full and proper examination as to the unity of the application at the present time.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/IT 95/00009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4289501	15-09-81	US-A- 4286969	01-09-81
US-A-4516981	14-05-85	US-A- 4613340	23-09-86
US-A-4753661	28-06-88	DE-A- 3626102	11-02-88
		FR-A- 2602240	05-02-88
		GB-A- 2195126	30-03-88
		JP-A- 63057691	12-03-88
US-A-5055112	08-10-91	NONE	
US-A-4441890	10-04-84	NONE	
WO-A-9313294	08-07-93	DE-A- 4143056	01-07-93
		CA-A- 2126968	08-07-93
		EP-A- 0618995	12-10-94
		NO-A- 942451	19-08-94